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09/919,047	07/31/2001	Ramesh Nagarajan	129250-002056/US	4255
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CURS, NATHAN M				
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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* RAMEISH NAGARAJAN  
and MUHAMMAD A. QURESHI

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Appeal 2009-000568  
Application 09/919,047  
Technology Center 2600

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Decided: August 11, 2009

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Before KENNETH W. HAIRSTON, JOHN A. JEFFERY  
and THOMAS S. HAHN, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from a final rejection of claims 1 and 3 to 17. We have jurisdiction under 35 U.S.C. § 6(b).

We will sustain the anticipation rejection of claims 1, 3 to 7, 9 to 15, and 17, and sustain the obviousness rejection of claims 8 and 16.

Appellants have invented a method and apparatus for use in a node of a network during a connection setup between a source node and a destination node. A cross-connect is initiated with an adjacent node, and at substantially the same time as the cross-connect is initiated, a connection setup message is sent to a next node before completion of the cross-connect (Fig. 1; Spec. 2 to 6).

Claim 1 is representative of the claims on appeal, and it reads as follows:

1. A method for use in a node of a network during a connection setup between a source node and a destination node, the method comprising the steps of:

initiating a cross-connect with an adjacent node;  
at substantially the same time as the cross-connect is initiated, sending a connection setup message to a next node before the cross-connect is completed.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Wei, *Just-In-Time Signaling for WDM Optical Burst Switching Networks*, Journal of Lightwave Technology, Vol. 18, No. 12, Dec. 2000, pp. 2019-2037.

Qiao, *Just-Enough-Time (JET): A High Speed Protocol for Bursty Traffic in Optical Networks*, Digest of the IEEE/LEOS Summer Topical Meetings, Aug. 11-15, 1997, pp. 26 and 27.

The Examiner rejected claims 1, 3 to 7, 9 to 15, and 17 under 35 U.S.C. § 102(a) based upon the teachings of Wei.

The Examiner rejected claims 8 and 16 under 35 U.S.C. § 103(a) based upon the teachings of Wei and Qiao.

Appellants argue (App. Br. 5 to 7; Reply Br. 1 to 3) that Wei does not describe sending a connection setup message to a next node at substantially the same time as a cross-connect with an adjacent node is initiated, and before completion of the cross-connect.

Appellants argue (App. Br. 7 and 8; Reply Br. 3 and 4) that the applied references do not teach in-band signaling.

## ISSUE

### *Anticipation*

Have Appellants shown that the Examiner erred by finding that Wei describes sending a connection setup message to a next node at substantially the same time as a cross-connect with an adjacent node is initiated, and before completion of the cross-connect?

### *Obviousness*

Have Appellants shown that the Examiner erred by finding that applied references teach in-band signaling?

## FINDINGS OF FACT (FF)

1. In Appellants' invention, "[n]etwork pipelining<sup>1</sup> is illustratively realized by having a forward pass (from a source node to a destination node) in the connection setup that simply initiates the cross-connect - but does not wait

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<sup>1</sup> "This results in completely pipelining the various cross-connect operations at each node" (Abstract).

for it to complete” (Spec. 4). In other words, “the source node does not wait for the local cross-connect to complete and, instead, sends a connection setup message to the next node in the path” (Spec. 6).

2. Wei describes network connection setup between a source node and a destination node (Fig. 4).

3. Wei indicates that the setup time<sup>2</sup> can be improved by pipelining the cross-connect setup times with the propagation times (p. 2022, right col.).

4. With Wei’s use of pipelining, “[c]ross-connect setup is performed in parallel with the next hop propagation” to a next node (p. 2023, right col.).

5. In Figure 4 of Wei, the vertical timelines at the source node, the intermediate node, and the destination node all show a connection setup message (i.e., Setup) being sent to the next node at the initiation of the cross-connect time  $t_c$ .

6. Although Wei uses out-of-band signaling to accomplish connection setup (Abstract; p. 2019, right col.), Wei indicates that in-band signaling can also be used to accomplish the same task (p. 2021, right col.).

7. The Examiner cited Qiao as a teaching of the inherent use of in-band signaling when the system is not a wavelength division multiplexed (WDM) network, and uses just-in-time (JIT) signaling (Ans. 7 and 8).

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<sup>2</sup> As discussed in the Background of the Invention, Appellants, like Wei (Abstract; p. 2023, left col.), are concerned with setup time at each node.

## PRINCIPLES OF LAW

### *Anticipation*

Anticipation is established when a single prior art reference discloses expressly or under the principles of inherency each and every limitation of the claimed invention. *Atlas Powder Co. v. IRECO Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

### *Obviousness*

The Examiner bears the initial burden of presenting a prima facie case of obviousness, and the Appellant has the burden of presenting a rebuttal to the prima facie case. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

## ANALYSIS

### *Anticipation*

Turning first to the anticipation rejection of claims 1, 3 to 7, 9 to 15, and 17<sup>3</sup>, we agree with the Examiner's statement (Ans. 10) that in Figure 4 of Wei, "the SETUP message starts propagating toward the next node after period  $t_p$ , at approximately the same time that period  $t_c$  starts" (FF 5). Wei, like Appellants, uses pipelining (i.e., a parallel processing operation) to accomplish the connection setup between a source node and a destination node (FF 1 to 4). Thus, the anticipation rejection of claims 1, 3 to 7, 9 to 15, and 17 is sustained because Wei sends a connection setup message (i.e., Setup) to a next node at substantially the *same time* as a cross-connect with

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<sup>3</sup> Appellants argued claims 1, 3 to 7, 9 to 15, and 17 together as a single group (App. Br. 5 to 7; Reply Br. 1 to 3).

an adjacent node is initiated at time  $t_c$ . *See Atlas Powder Co.*, 190 F.3d at 1347; *In re Paulsen*, 30 F.3d at 1478-79.

*Obviousness*

Inasmuch as Wei teaches that in-band signaling as well as out-of-band signaling can be used in the switching network described by Wei (FF 6), and Qiao inherently teaches the use of in-band signaling in JIT signaling (FF 7), we agree with the Examiner (Ans. 7, 8, and 11 to 13) that it would have been obvious to the skilled artisan to use in-band signaling in lieu of out-of-band signaling in Wei. Accordingly, the obviousness rejection of claims 8 and 16 is sustained because Appellants' rebuttal arguments (App. Br. 7 and 8; Reply Br. 3 and 4) do not convince us that the skilled artisan would not have used in-band signaling in Wei. *See In re Oetiker*, 977 F.2d at 1445.

CONCLUSIONS OF LAW

*Anticipation*

Appellants have not demonstrated that the Examiner erred by finding that Wei describes sending a connection setup message to a next node at substantially the same time as a cross-connect with an adjacent node is initiated, and before completion of the cross-connect.

*Obviousness*

Appellants have not demonstrated that the Examiner erred by finding that the applied references teach or would have suggested the claimed subject matter set forth in claims 8 and 16.

**ORDER**

The decision of the Examiner rejecting claims 1, 3 to 7, 9 to 15, and 17 under 35 U.S.C. § 102(a) is affirmed. The decision of the Examiner rejecting claims 8 and 16 under 35 U.S.C. § 103(a) is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

**AFFIRMED**

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